File

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam Oroville Dam Dam No. 1-48 County Butte
Type of dam Earthfill Type of Spillway Gated Concrete Weir and Chute
Water is 114.32 feet below spillway crest and 222.52 feet below dam crest.
W.S. 699.48 feet
Weather Conditions Partly cloudy and cold
Contacts made Alex Samaan, OFD; David Panec and Mike Urbano, O&M.
Reason for inspection Periodic Evaluation (1st inspection)

Important Observations, Recommendations or Actions Taken

The radial gate repairs have been completed. In addition, one trunnion pin was removed for inspection and found to be in satisfactory condition. Concrete spalling continues at the left and right abutments of the spillway boat ramp access bridge. The field office is monitoring the displaced riprap on the upstream slope of the dam as requested during the last inspection. O&M is reviewing the instrument program, and has contracted with DOE to develop a new PMF.

Conclusions

From the known information and the visual inspection, the dam, reservoir, and the appurtenances are judged satisfactory for continued use, pending completion of radial gate repairs.

Item No.*	Item Name and Observation and Comment
A1-A4	Dam - The embankment appeared to be stable. This is supported by the monument data. The crest road, the slopes, and the abutments were in good condition. No objectionable vegetation or rodent activity was observed. The field office is monitoring the displaced riprap noted during the last inspection. I suggested that a few survey points be painted on selected boulders and included in the precise survey program. The foundation gallery was traversed. No unusual conditions were observed. Seepage within the gallery was much reduced due to the low reservoir level. The field office should consider cleaning the accumulated calcite deposits and organic material from the utility pipes along the gallery walls. Terminal S was unchanged. House T has been cleaned to a large extent as suggested during the last inspection. However, rodent nesting material and droppings remain. Bidwell Bar Canyon Saddle Dam, Parish Camp Saddle Dam - The saddle dikes will be evaluated during the next inspection. Palermo Tunnel - This facility will be evaluated during the next inspection.

12/4/02
WPennington

Typed by wmp
Date 12/4/02
cc for Book/Owner

Use Field Sheet Standard Numbers and Items (See Reverse Side)

Inspected by WPennington
Date of Inspection 11/18/02
Date of Report 12/4/02
Photos taken? Yes X No
Sheet 1 of 3 Sheets

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Oroville Dam No 1-48

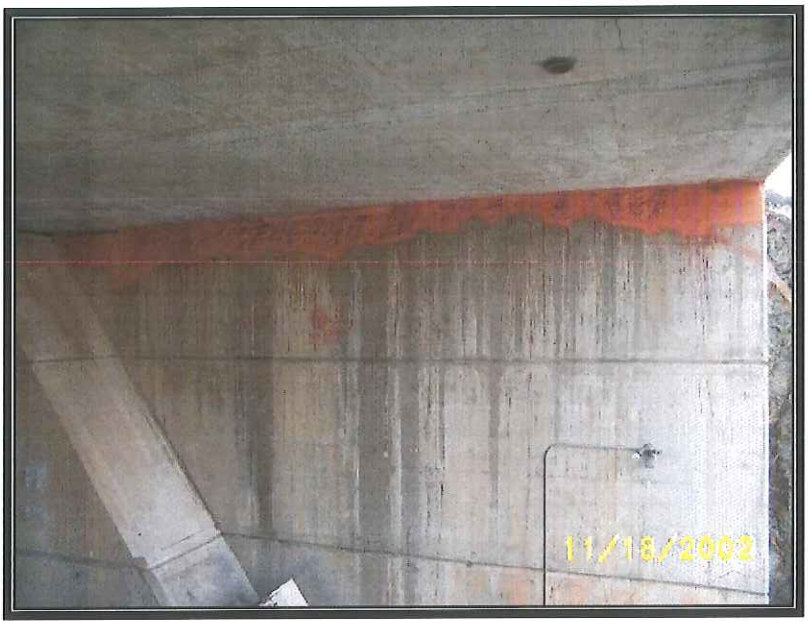
Date of Inspection 11/18/02

Observations and Comments (Continued)

Item No.*	Item Name and Observation and Comment
6,8,10	Spillway - The chute and walls of the flood outlet were observed from the roadway deck, the dam crest, and by walking the left drain alignment. Nothing unexpected or out of the ordinary was observed. The flood control structure, radial gates, and mechanical equipment appeared to be in satisfactory condition. Spalling of the left and right bridge abutments for the boat ramp access bridge is under investigation. Fresh paint has been applied over the problem areas to help identify additional spalling, see photograph 1. The emergency overflow weir remains in good condition. The radial gate repair contract is complete. Numerous missing and poor welds were found and addressed. Water was removed from a number of radial arms and diagonal braces. The members were sealed and air tested following removal of water. The contractor removed one trunnion pin for inspection. Following an examination and cleaning, the pin was reinstalled. The pin and bearing were found to be performing satisfactorily.
14,16	Outlet - Two turbines we running, producing 120 MW. The low level outlets were passing 750 cfs. The valves were said to be performing satisfactorily.
17	Seepage - No indications of seepage were observed on the embankment or groins. Seepage started at elevation 798 in the left gallery, and at elevation 744.5 in the right gallery. This was well above the reservoir level of 699.48 feet. Total seepage at the gallery sump was approximately 20 gpm. The drainage in the emergency exit tunnel appeared to be about the same as usual. Seepage at House T and Terminal S was as expected. Seepage water turbidity readings remain acceptable.
18	Instrumentation - Instrumentation currently being read is shown on the Instrumentation Data Sheet dated 6-14-02. The instrumented monitoring program is under review by O&M. Following the review, the proposed program will be submitted to DSOD for comment. During the last Dam Safety Review Board in 1999, the Board recommended that the Department rely on the survey monuments and seepage readings, and retire the remaining instruments. This approach should be considered.

Observations and Comments (Continued)

Item No.*	Item Name and Observation and Comment
	Instrumentation cont. The most recent data plots were provided during the inspection. Date goes back as far as 1966, in some cases, and ends in mid- to late 2002. *Hydraulic piezometers*: Of 56 units, only 10 are functional. These are read weekly. The most recent data appears normal. *Seepage*: Combined internal drainage and total seepage at the toe weir have tracked the reservoir level and remain within an acceptable range. *Embankment settlement and horizontal movement*: The movements appear to be consistent with historical trends, and indicate that the dam is stable. *Extensometers and Joint Monitoring*: Deformations are measured in the power house and the core block on a quarterly basis. The most recent data shows cyclical movement within historical limits.
21	Other The low level intake structure at the right abutment was exposed due to the low water level. This structure was installed in anticipation of an additional outlet. Photograph 2 shows this seldom seen project feature.



1. This picture shows the spalling at the left abutment of the spillway bridge deck. Conditions at the right abutment are similar. Fresh paint has been sprayed on the spalled areas in order to track the progress of deterioration. Photograph courtesy David Panec, O&M.

2. The unused intake structure at the right abutment is shown. The original intent was to install an additional outlet at this location. Photograph courtesy David Panec, O&M.

Oroville Dam, No. 1-48
Butte County
WPennington 11-18-02